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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,584	02/28/2002	Ron P. Maurer	100202761-1	3918

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

SUKHAPHADHANA, CHRISTOPHER T

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 12/03/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,584

Applicant(s)

MAURER ET AL.

Examiner

Christopher T. Sukhaphadhana

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

The full name of each inventor (family name and at least one given name together with any initial) has not been set forth.

Note that the inventor listed as Marie Vans has signed the declaration with the name A. Marie Vans. The initial 'A.' or the name it stands for needs to be included as part of the full name of the inventor.

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "24" has been used to designate both 'user selection module' and 'data storage module' in Fig 2 and throughout the specification. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: Consider updating the status of co-related applications, e.g. **paragraph 0043 & 0050**.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-10 and 12-15** are rejected under 35 U.S.C. 102(e) as being anticipated by Nara (U.S. Publication 2002/0060819 A1, newly cited, “Nara”).

5. In regards to **claim 1**, Nara discloses a method of processing a digital image (Fig 14) corresponding to a scanned document (paragraph 0075) having corresponding image data comprising a plurality of pixel values and having an associated background, the method comprising: analyzing image data (paragraph 0137, ref no 48 and 49) to obtain statistical data; deriving a background noise removal tonemap function (Fig 19(b) and paragraphs 0161 and 0164) for the entire image based on the statistical data; storing the image data (ref no 58, Fig 14) and tonemap function (Fig 17); providing user selection (paragraph 0158 in light of paragraph 0098) to: in a first case, remove background noise from the image wherein pixel values are converted using the tonemap function prior to rendering the image; and in a second case, to bypass background noise removal prior to rendering.

6. In regards to **claim 2**, Nara further discloses in ref no 43, Fig 14, and paragraph 0085, the method further comprising pre-processing the image data while analyzing image data and using intermediate results obtained from pre-processing the image data to obtain statistical data.
7. In regards to **claim 3**, Nara further discloses in Table 1, paragraph 0096, the method further comprising storing the tonemap function by generating a corresponding look-up table and storing the look-up table with the image data.
8. In regards to **claim 4**, Nara further discloses in paragraph 0136, last line, the method further comprising storing the image data and the tonemap function according to a selected document format.
9. In regards to **claim 5**, Nara further discloses in paragraph 0137, analyzing the image data further comprising estimating a global background tone value.
10. In regards to **claim 6**, Nara further discloses in paragraph 0152, the tonemap function being derived from the global background tone value.
11. In regards to **claim 7**, Nara further discloses in paragraph 0170, the method further comprising providing a user interface allowing viewing of a rendering of image data dependent on the user selection.
12. In regards to **claim 8**, Nara further discloses in paragraph 0171, the method further comprising providing a user interface including an option allowing the selection of background noise removal on a page-by-page basis.
13. In regards to **claim 9**, Nara discloses a method of processing a digital image (Fig 14) corresponding to a scanned document (paragraph 0075) having corresponding image data comprising a plurality of pixel values and having an associated background, the method

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comprising: analyzing image data (paragraph 0137, ref no 48 and 49) to obtain statistical data; storing the image data (ref no 58, Fig 14) and statistical data (paragraph 0136, BaGATE and paragraph 0137, DbA); providing user selection (paragraph 0158 in light of paragraph 0098) to: in a first case, remove background noise from the image wherein pixel values are converted by deriving a background noise removal tonemap function (Fig 19 and paragraph 0152) from the stored statistical data; and in a second case, to bypass background noise removal prior to rendering.

14. In regards to **claim 10**, Nara further discloses in paragraph 0137, the statistical data being a global background value derived from the image data.

15. In regards to **claims 12, 13, and 14**, the additional elements set forth in these claims have been addressed in the arguments of claims 2, 7, and 8 above, respectively.

16. In regards to **claim 15**, all the elements set forth in this claim have been addressed in the argument of claim 1 above.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nara (U.S. Publication 2002/0060819 A1, cited above, "Nara") as applied to claim 9, in combination with Ball (U.S. Patent 6,323,957 B1, newly cited, "Ball").

19. In regards to **claim 11**, Nara does not expressly disclose the statistical data being at least one histogram derived from the image data.

However, Nara does disclose in paragraph 0137 using statistical data derived from image data. In the same paragraph, Nara also teaches this statistical data being merely "sufficient" accuracy.

Ball teaches in col 4, lines 59 – col 5, line 2, the limitation as claimed.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Ball's histogram in lieu of Nara's peak-hold circuit because use of the histogram derived data would improve the accuracy of the derived background level for more critical or sensitive applications of the invention.

20. **Claims 1-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Karidi (WO 00/70863 A3, cited in IDS filed 14 Oct 2003, "Karidi") in combination with Ball (U.S. Patent 6,323,957 B1, cited above, "Ball").

21. In regards to **claim 1**, Karidi discloses a method of processing a digital image (Fig 1) corresponding to a scanned document (page 4, lines 18-25) having corresponding image data comprising a plurality of pixel values and having an associated background, the method comprising: providing user selection (second full paragraph, page 5) to: in a first case, remove

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background noise from the image (last paragraph, page 5) prior to rendering the image; and in a second case, to bypass background noise removal prior to rendering.

Karidi does not expressly disclose the remaining limitations. Karidi also does not expressly teach a specific method of background noise removal, stating instead that such techniques are well known in the art (last paragraph, page 5).

Ball teaches analyzing image data (ref no 36, Fig 5A, and col 4, line 59 – col 5, line 2) to obtain statistical data; deriving a background noise removal tonemap function (Fig 14 and col 5, lines 26-43) for the entire image based on the statistical data; and removing background noise from the image (ref no 54 and col 5, lines 26-43) wherein pixel values are converted using the tonemap function prior to rendering the image.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Ball's background removal with Karidi's method because it is a technique known in the art for background removal compatible with Karidi's method. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to store the image data and tonemap function because it would be necessary for the proper integration of Ball's background removal and Karidi's method. The user selection of Karidi would need to synchronize with the rendering unit 18 (Fig 4) of Ball in order to employ the proper logic for the output pixels. Thus, a buffer or memory would need to be utilized to store the image data and tonemap function prior to the actual rendering until the user selection occurs.

22. In regards to **claim 2**, Ball further discloses in ref no 34, Fig 5A, the method further comprising pre-processing image data while analyzing image data and using intermediate results obtained from pre-processing the image data to obtain statistical data.

23. In regards to **claim 3**, Ball further discloses in col 14, lines 54-59, the method further comprising storing the tonemap function by generating a corresponding look-up table and storing the look-up table with the image data.

24. In regards to **claim 4**, Ball further discloses in ref no 50, pixel stream, the method further comprising storing the image data and the tonemap function according to a selected document format.

25. In regards to **claim 5**, Ball further discloses in col 5, lines 26-43, analyzing the image data further comprising estimating a global background tone value.

26. In regards to **claim 6**, Ball further discloses in col 5, lines 26-43, the tonemap function being derived from the global background tone value.

27. In regards to **claim 7**, Karidi further discloses in ref no 23, Fig 1, the method further comprising providing a user interface allowing viewing of a rendering of image data dependent on the user selection.

28. In regards to **claim 8**, Karidi further discloses in ref no 23, Fig 1, the method further comprising providing a user interface including an option allowing the selection of background noise removal on a page-by-page basis.

29. In regards to **claim 9**, Karidi discloses a method of processing a digital image (Fig 1) corresponding to a scanned document (page 4, lines 18-25) having corresponding image data comprising a plurality of pixel values and having an associated background, the method comprising: providing user selection (second full paragraph, page 5) to: in a first case, remove background noise from the image (last paragraph, page 5); and in a second case, to bypass background noise removal prior to rendering.

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Karidi does not expressly disclose the remaining limitations. Karidi also does not expressly teach a specific method of background noise removal, stating instead that such techniques are well known in the art (last paragraph, page 5).

Ball teaches analyzing image data (ref no 36, Fig 5A, and col 4, line 59 – col 5, line 2) to obtain statistical data; and removing background noise from the image (ref no 54 and col 5, lines 26-43) wherein pixel values are converted by deriving a background noise removal tonemap function (Fig 14 and col 5, lines 26-43) from statistical data.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Ball's background removal with Karidi's method because it is a technique known in the art for background removal compatible with Karidi's method. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to store the image data and statistical data because it would be necessary for the proper integration of Ball's background removal and Karidi's method. The user selection of Karidi would need to synchronize with the rendering unit 18 (Fig 4) of Ball in order to employ the proper logic for the output pixels. Thus, a buffer or memory would need to be utilized to store the image data and statistical data prior to the actual rendering until the user selection occurs.

30. In regards to **claim 10**, Ball further discloses in col 5, lines 26-43, the statistical data being a global background value derived from the image data.

31. In regards to **claim 11**, Ball further discloses in col 4, line 59 – col 5, line 2, the statistical data being at least one histogram derived from the image data.

32. In regards to **claims 12, 13, and 14**, the additional elements set forth in these claims have been addressed in the arguments of claims 2, 7, and 8 above, respectively.

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33. In regards to **claim 15**, all the elements set forth in this claim have been addressed in the argument of claim 1 above.

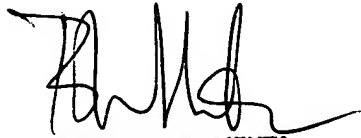
Conclusion

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher T. Sukhaphadhana whose telephone number is 703-306-4148. The examiner can normally be reached on 9a-4p M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3800.

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BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800